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Floyd E. Dowell, USDA, ARS  
Joe W. Dorner, USDA, ARS  
Richard J. Cole, USDA, ARS  
James I. Davidson, Jr., USDA, ARS

**AFLATOXIN LEVELS IN GRADE COMPONENTS OF SCREENED  
AND UNSCREENED PEANUTS**

Introduction

Aflatoxin in edible peanuts is a growing concern in the peanut industry. If aflatoxin is concentrated in specific components of peanuts, then emphasis can be placed on removing those components. If suspect components are removed, then the weight of the peanuts removed must be determined to evaluate the cost associated with reducing the risk of aflatoxin in edible peanuts.

Objectives

1. Determine the aflatoxin levels in grade components of screened and unscreened peanuts.
2. Determine the percent of the total meats removed by belt screening and removing aflatoxin suspect components.

Procedures

Ten 30 lb samples of crop year 1987 Runner peanuts were collected from fifteen loads of farmers' stock peanuts. The loads were selected from drought stressed fields. Each sample was screened over a belt screen with 24/64 inch gaps between the belts. The peanuts that rode over (overs) and fell through (thrus) the screen were separately cleaned and shelled. The foreign material, loose shelled kernels (LSK), sound mature kernels and sound splits (SMK+SS), other kernels (OK), and damaged kernels from each sample were weighed. High performance liquid chromatography (HPLC) was used to analyze each component for aflatoxin.

Results

Tables 1 and 2 show the following results:

1. Total aflatoxin levels were lower in peanuts that rode over the screen.
2. The damaged component had the highest aflatoxin concentrations followed by the loose shelled kernels and other kernels.
3. By weight, the damaged component comprised less than 2%, other kernels less than 15%, and loose shelled kernels less than 10% of the unscreened peanuts and peanuts that rode over the belt screen.
4. On the average, 15% of the peanuts fell through the

screen, but of the peanuts that fell through the screen, over 75% were loose shelled kernels, other kernels, and damaged kernels.

### Conclusions

Aflatoxin levels were highest in the damaged kernels, loose shelled kernels, and other kernels, respectively. Belt screening helped to remove the loose shelled kernels and other kernels, thus reducing the levels of aflatoxin in the peanuts that rode the belt screen. The damaged portion had the highest aflatoxin levels and is therefore the most important, yet small, component to remove.

Table 1. Aflatoxin levels in unscreened and screened peanuts (ppb).

	TOTAL	SMK+SS	OK	DAMAGE	LSK
Unscreened	10.6	0.2	10.7	370.4	77.3
Screened					
Overs	5.9	0.2	11.7	414.8	—
Thrus	43.2	0.0	7.5	140.7	77.3

Table 2. Percent of total meats associated with each component.

	% of Unscreened	SMK+SS	OK	DAMAGE	LSK
Unscreened		75.7	14.8	1.5	8.8
Screened					
Overs	85.0	85.2	12.8	1.7	0.3
Thrus	15.0	21.2	22.0	0.4	56.3